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COLLATERAL FOR LOANS: WHEN DOES IT MATTER?

by

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Abstract

This paper assesses the role of collateral by examining if collateral matters for loans i.e., if the lack of conventional collateral limits access to institutional credit in rural areas. It also discusses conditions under which collateral matters for loans by analyzing the constraints found in using collateral/collateral substitutes in different types of environments for various categories of borrowers. The analyses based on literature survey shows that while collateral matters for improving access to loans and to loans of larger size, these relationships may hold only when specific conditions such as strong markets and legal institutions, and political and social willingness to allow collateral perform its prescribed role are met. Policy recommendations for bankers, governments and donors are drawn from the analysis.

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In German mythology, some beautiful sirens inhabited a rocky part of Rhine, and through lovely songs lured sailors to the rocks despite their awareness of the risks Many lenders, like Rhine sailors, have crashed on the rocks of credit loss lured by the siren song of collateral communicating security despite the dangers accompanying it -- Peter Larr, The Journal of Commercial Lending, 1994.

I. INTRODUCTION

Conventional wisdom holds that collateral in the form of physical assets is useful in securing loans and reducing loan losses. The traditional view is that most lenders require collateral for loans and that land is the preferred form. In the absence of clear land titles or other forms of collateral or collateral substitutes, it is expected that there will be a contraction in the supply of credit thereby reducing access to finance for rural borrowers (Binswanger and McIntire, 1987). Recent theoretical literature and limited empirical evidence, however, suggests that collateral performs a much more complicated role in lending, that it's use involves costs, that it interacts with several other loan terms and conditions that substitute for it, and that it does not always improve access to credit. Furthermore, the use of several collateral substitutes has been observed to improve access to loans,

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especially in informal rural financial markets, and the institutional environment has been shown to have an important influence on the value and acceptability of certain assets as collateral.

This paper assesses the role of collateral by examining if collateral matters for loans i.e., if the lack of conventional collateral limits access to institutional credit in rural areas. It also discusses conditions under which collateral matters for loans by analyzing the constraints found in using collateral/collateral substitutes in different types of environments for various categories of borrowers. Specifically, the paper addresses several issues including: What is collateral? What role is there for various types of collateral/collateral substitutes? Can other loan terms and conditions effectively substitute for conventional collateral? Can collateral improve access to institutional credit for rural populations? How can collateral/collateral substitutes be evaluated? Can we identify innovative collateral substitutes used to increase access to formal loans for rural populations? Can savings mobilization be used as a potential collateral substitute? The discussion is primarily limited to developing countries.

The paper is organized as follows: after defining collateral and collateral substitutes, the next section explores the role of collateral/collateral substitutes in rural financial markets. This is followed by empirical evidence on the role of collateral, an analysis of the strengths and weaknesses of several different types of collateral/collateral substitutes used in developing countries, and a discussion of the issues in evaluating collateral/collateral substitutes, especially in countries with a weak legal environment. Policy implications conclude the paper.

II. DEFINITION OF COLLATERAL AND COLLATERAL SUBSTITUTES

Collateral is generally required when information about borrowers is costly and unavailable for lenders. Collateral is especially important when they attempt to serve new clients. Collateral is defined as an asset that upon liquidation is adequate to cover most or all of the lender's risk exposure including principal, accrued interest and collection costs (Larr, 1994). In general, physical assets such as land, real estates and chattel mortgages are considered as collateral.

Binswanger et al. (1986) defined collateral by attaching three attributes to it: collateral is a physical asset which satisfies the conditions of (i) appropriability, (ii) absence of collateral-specific risks, and (iii) accrual of the returns to the borrower during the loan period. Appropriability refers to the ease of liquidating the collateral by the lender in case of default. Collateral-specific risks can be reduced by insuring an asset for risks against theft, fire, disease, and by accepting assets that are secure from inflation and political risks. Real estate and land with proper title are generally low risk, while vehicles and animals constitute more risky assets unless properly insured. Accrual of returns to the borrower during the contract period refers to the direct economic returns earned from the use of the asset or the indirect economic returns earned from the investments made with loans obtained using the asset as collateral.

The above definition of collateral is restrictive because it precludes as collateral the use of non-tradeable assets, including reputation, loss of future loans and social ostracism. These non-tradeable assets are generally more valuable to the borrower than the lender. Therefore, they can reduce moral hazard problems for the lender and can help to enforce contracts even though they will

not cover the lender's loan loss [2]. Binswanger et al. (1986) extended the definition of collateral to include collateral substitutes. Collateral substitutes are defined as non-physical assets with or without a market value, or physical assets that have qualities other than collateral to enforce loan repayments. Collateral substitutes include interlinked contracts, third party guarantees, moral persuasion, threat of loss of future borrowing opportunities, reputation, long-term relationships (familial and/or business), group liability, guarantee funds, savings, insurance policies, inventories and accounts receivables. Furthermore, some of the loan terms and conditions, such as interest rates and penalty conditions, can effectively substituted for collateral (Adams, 1994b). Indeed, some collateral substitutes, such as interlinked contracts, can be included as one of the terms and conditions of a loan contract and hence substitute for collateral.

In practice, what serves as collateral/collateral substitutes depends on the production, social, legal, economic and political environment of a country. There is no single official definition or consensus concerning the collateral/collateral substitutes used by financial institutions in developing countries. For example, in several Near East countries, banks define loan collateral as a measure taken by a lender to protect the money lent from misuse or losses. Collateral includes pawning, pledging and third party guarantees that have cash value upon liquidation by the lender (NENARACA, 1994). In the Philippines, however, while the pledging of land rights is widely accepted as collateral, the pawning of cultivation rights is not accepted by banks. In general, therefore, collateral/collateral substitutes have evolved through time and their usage is often recognized by legal and social statutes. Furthermore, semiformal and informal financial

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[2] Moral hazard problems refer to the borrowers' failure to make their best effort to keep their commitments to the loan contract.

arrangements have developed collateral substitutes which provide access to loans for many borrowers who lack assets required as collateral by formal lenders.

III. ROLE OF COLLATERAL/COLLATERAL SUBSTITUTES

The prevalence of collateral as an integral part of credit contracts in many countries demonstrates its important role in financial markets. Collateral is perceived to perform several functions and ensures that the interests of borrowers and lenders are more closely matched so that transactions can be consummated even in environments characterized by high risks in lending and high borrowing costs. This section examines the role of collateral/collateral substitutes in improving borrower access to loans.

1. Theoretical Predictions

A. Functions of Collateral

The early theoretical models defined the functions of collateral based on the assumption of asymmetric valuation of collateral by lenders and borrowers. They focussed on the importance of collateral from a supply side dimension and ignored important informational problems (Barro, 1976; Benjamin, 1978). Later models, however, incorporated moral hazard and adverse selection problems related to information asymmetry, and developed equilibrium implications necessary in assessing the role of collateral (Bester, 1985,1987, Besanko and Thakor, 1987; Chan and Kantas, 1985; Chan and Thakor, 1987; Plaut, 1985; Stiglitz and Weiss, 1981). Currently, there are two schools of thought regarding the functions of collateral: (i) signalling function, and (ii) enforcement function.

a. Collateral as a Signalling Device

The theoretical literature predicts that lenders can use collateral to screen and sort among observationally homogenous borrowers. In these models, lenders offer a menu of contracts with various combinations of collateral requirements and interest rates. Borrowers with a low probability of default are more inclined to accept an increase in collateral requirements for a certain reduction in loan interest rates than are those with a high probability of default (Bester, 1985, 1987; Besanko and Thakor, 1987; Chan and Thakor, 1987). Borrowers, therefore, signal their risk types by revealing their preferences between collateral and interest rates. Signalling costs for the borrowers are the potential loss of collateral when project returns are low. Increases in collateral requirements always harm low risk borrowers less than high risk borrowers since their chances of project failure are low. Therefore, signalling costs are larger for high risk borrowers. In this way, collateral functions as a signalling device and lenders can use it as low cost self-selection and incentive mechanism to sort borrowers according to their risk types.

The signalling value of collateral is, however, linked to the costs of collateralization and the ability to collateralize. The ability to collateralize has to be negatively related to the costs of collateralization, and asset holdings must be positively related to income or ability to repay so that low risk borrowers can identify themselves from high risk ones (Devinney, 1986). Collateral will not serve as a signal: (i) if interest rates are sticky, or (ii) if the marginal collateralization costs for high risk borrowers are less than low risk borrowers so that they prefer to offer more collateral for a reduction in loan terms, or (iii) if low risk borrowers have less wealth that can be offered as collateral than high risk borrowers. Furthermore, when banks are not diligent in loan collection, high risk borrowers will be willing to offer more collateral for lower interest rates, if they are not

constrained by assets, since they can escape repayment and foreclosure of collateral. In addition, renegotiations on loan extension and collateral foreclosing at the end of a contract may seriously undermine the role of collateral as a signalling device since low risk borrowers can no longer distinguish themselves by offering more collateral if collateralization becomes attractive also for high risk borrowers. In the absence of renegotiation, borrowers with good projects can distinguish themselves from bad projects by offering more collateral. When there is chance of renegotiation, high risk borrowers will find it advantageous to offer more collateral because they can get better loans terms and will not be penalized through foreclosure of collateral for default (Bester, 1994).

b. Collateral as an Enforcement Device

Collateral secures the loans against both exogenous and endogenous risks that lead to loan default. On the one hand, in the absence of well-defined insurance markets, such as crop insurance, loan losses due to exogenous shocks are covered by collateral. On the other hand, collateral increases the stake of the borrower in the loan transaction. Endogenous risks are reduced when threats of foreclosure of collateral by financial institutions discourages borrowers from engaging in moral hazardous activities.

The enforcement models predict that collateral can perform its functions by either reducing the lender's default loss or by making it costly for the borrower to default (Barro, 1976; Benjamin, 1978). If collateral is used as an incentive against borrower default, then high risk borrowers will be required to offer more collateral for a given loan size compared to low risk borrowers. Since collateral increases the expected returns to the lender and prevents the borrower from engaging in moral hazardous actions, the amount of loan granted is expected to increase, ceteris paribus, as the risk adjusted value of collateral increases. The enforcement models, of course, rest on the

assumption of a legal environment that facilitates loan enforcement and the marketability of assets offered as collateral.

B. Effects of Collateral

a. Effect on Loan Terms and Conditions

Rigorous models have been developed to demonstrate that collateral, ceteris paribus, increases loan size or reduces the rates of interest charged on loans (Barro, 1976; Benjamin, 1978; Plaut, 1985). Signalling models, under certain assumptions about limits on the availability of collateral and the costs of collateralization, predict a substitutability between interest rates and collateral. Loan sizes, however, are conditional on the costs of collateralization so there are limits to the direct proportionality between collateral and loan size. But, with no costs of collateralization, loan sizes are shown to be directly proportional to the mean value of the collateral offered. Barro (1976) shows that an increase in the loan to collateral ratio and an increase in the costs of collaterilization will increase the expected cost of capital, i.e. the interest rate. Chan and Kantas (1985) later proved that interest rates will be increasing and collateral level will be decreasing with an increase in the marginal costs of collaterilization. Furthermore, Benjamin (1978) argued that the costs of collateralization lead to three effects. The greater the costs associated with selling collateral, (i) the lower will be the maximum loan granted with collateral, (ii) the greater will be the lender's losses in the event of default, and (iii) the greater will be the contractual interest rates for any given ratio of loan size to gross market value of the collateral asset.

Plaut (1985) cautions that the heterogenous attributes of collateral make it difficult to unambiguously derive any implications about the use of different types of collateral to increase loan sizes. When the costs of collateralization are positive and when there are limitations in foreclosing

the collateral, then a riskier asset may make better or worse collateral so the utility of lenders may or may not increase with use of collateral and an increase in the average return on an asset may or may not make it a better collateral. These ambiguities complicate the development of clear relationships between collateral and the other terms of a loan, especially in a static setting with poor supporting institutions.

b. Adverse Selection Effect

Collateral is expected to have an adverse selection effect because higher collateral requirements will deter good borrowers from entering credit markets (Stiglitz and Weiss, 1981; Wette, 1983). The seminal paper by Stiglitz and Weiss shows that lenders may not choose to use collateral as a rationing device since an increase in collateral requirements will function like an increase in interest rates which leads to a loss in the lender's expected return on loans because of adverse selection. This occurs since increases in collateral requirements will result in less risky borrowers dropping out of the credit market. For a given project, an increase in collateral increases costs and decreases profits, thereby reducing the project's expected profits for the borrower. Some projects that were initially profitable may become unprofitable at higher collateral requirements. Furthermore, since wealthier borrowers are able to offer collateral and are less risk averse, they will undertake risky projects. The adverse selection effect is so strong that increasing collateral requirements beyond a limit will only attract risky clientele and will lower a bank's returns [3].

c. Matching Effect

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[3] The adverse selection effect implies that collateral has no signalling value. But if assumptions about the equality of collateralization costs and asset holdings by various types of borrowers according to their risk types are relaxed, then collateral will have signalling value and will facilitate borrower sorting (Devinney, 1986).

Collateral/collateral substitutes along with the other terms and conditions of a loan contract facilitate the matching of the utility functions of both borrowers and lenders in informal credit markets (Esguerra, 1993; Nagarajan, 1992). *Ceteris paribus*, the matching of lenders and borrowers can be explained in part by: (i) the borrower's ability to offer collateral/collateral substitutes that are valued by the lenders resulting in differential access to lenders, and (ii) the lender's ability to provide borrower specific services and accept his collateral/collateral substitutes leading to the borrower's contract choice from among the accessible set of contracts. As a result, a predictable pattern of loan contracts emerges through the use of collateral/collateral substitutes that matches heterogenous borrowers and lenders.

d. Credit Rationing

Credit rationing occurs when certain applicants are denied credit (loan quantity rationing) or when some borrowers are supplied with smaller sized loans than demanded (loan size rationing). This section refers to loan quantity rationing. The effect of collateral on relaxing credit rationing reveals the impact of collateral in increasing rural lending. Theoretical models show that lenders may not want to use collateral as a rationing device, and that neither interest rates nor collateral can be used to equate supply and demand in credit markets. Credit restrictions take the form of limiting the number of loans that the bank makes rather than limiting the size of each loan or making interest rates an increasing function of the magnitude of loans (Stiglitz and Weiss, 1981).

Stiglitz and Weiss (1981) conclude that lenders may not choose to increase collateral requirements for larger loan sizes since it will result in adverse selection effects. Therefore, credit rationing can occur even in a competitive equilibrium. Wette (1983) shows that increases in

collateral can lead to adverse selection effects even if borrowers and lenders are risk neutral; therefore, credit rationing cannot be avoided in equilibrium.

Bester (1985, 1987), however, argues that credit rationing will not occur in equilibrium if banks compete by simultaneously choosing collateral requirements and interest rates to screen borrowers. The results are based on assumptions including the existence of a direct relationship between riskiness and preferences of borrowers, and the ability of low risk borrowers to raise sufficient amounts of collateral to distinguish themselves from high risk ones. Rationing may occur, however, even in equilibrium if these assumptions are violated and if the interest rate restrictions and lack of infinite supply of funds exist, and if the lack of enforcement mechanisms renders asset liquidation impossible. Chan and Thakor (1987) show that if the costs of collateralization are high, it is possible for low risk borrowers who offer more collateral to be rationed out of the market even if banks have idle funds. Furthermore, Bester (1994) in his later work concludes that debt renegotiation at the end of the contracting period may seriously undermine the role of collateral as a signalling device. In this case, credit rationing occurs even in equilibrium.

C. Synthesis of the Theoretical Models

The theoretical literature summarized above shows that while some models predict that collateral has a signalling value to sort borrowers, others emphasize its enforcement and incentive effects on loan repayment. Both the signalling and the enforcement models predict that collateral will generally not be used in loan contracts that involve known low risk borrowers, but it will be more prevalent in lending to smaller firms. The two types of models differ only in that enforcement models predict that high risk borrowers and small firms provide collateral, while signalling models predict that low risk borrowers in any size category offer more collateral than high risk borrowers.

The theoretical models generally predict that lender profits increase with increases in collateral if there are no direct costs for them in liquidating it at the time of default. But collateral imposes some costs on both borrowers and lenders irrespective of whether the borrowers actually default. The risk of incurring high transaction costs in the event of unintended default may imply that farmers may forego the use of collateral even though it limits their access to loans (Feder, 1988). The costs of collateralization is expected to break the direct relationship between collateral used and loan size.

The majority of the theoretical models are based on the assumption that the risk type of a borrower is revealed by the collateral offered for a loan. When collateral is a binding constraint and the costs of collateralization is high, lenders cannot sort borrowers based on collateral choice alone. Furthermore, when collateral is imperfect and heterogenous, it is difficult to delineate its actual role. In addition, lenders are not always diligent in their collection techniques so bad borrowers may mimic good borrowers, especially when both good and bad borrowers are not limited by assets that can be offered as collateral. A full equilibrium analysis of the loan market in a dynamic setting is required in order to explain the quantity of collateral required for loans along with the determination of interest rates and loan quantities.

2. Empirical Evidence

Several studies exist that reveal the preponderant use of collateral in many rural financial markets and the use of innovative mechanisms that substitute for conventional collateral to provide loan services. They are, however, largely descriptive. It is difficult to conduct rigorous empirical examinations of the role of collateral in rural lending because several types of perfect and imperfect

collateral are used by borrowers to secure loans or to signal their risk types. Furthermore, the terms and conditions of the loan contracts are often simultaneously formed so efforts to assess their interaction effects have generally been futile and have led to erroneous results. In addition, the lack of data about potential borrowers who self-select themselves out of the credit market due to their perceptions that collateral is required to apply for loans, and the lack of information about the actual reasons used by lenders to reject applicants may seriously bias the analysis and lead to underestimating/overestimating the role of collateral in improving access to loans. Nonetheless, some empirical evidence supports the theoretical predictions summarized above. While collateral seems to matter for loans by increasing the probability of obtaining loans and/or receiving larger sized loans, these relationships may hold only over a specific range of loan sizes. The qualifications to these relationships include limits on the assets available as collateral, limits on loanable funds by lenders, costs of collaterilization, the institutional environment, and the availability of markets to liquidate collateral in case of loan default. While collateral may reduce loan size rationing, where borrowers are supplied loan amounts smaller than demanded, and loan quantity rationing, where some loan applicants are totally rejected, it cannot completely eliminate it.

A. Collateral and Loan Size

Collateral can affect loan size rationing. Feder et al. (1988) showed that access to institutional loans and loan sizes increased with increases in the amount and value of land offered as collateral in Thailand. The size of loans granted increased with the security of land titles. In addition, farmers who provided land as collateral obtained larger loans than farmers who provided a group loan guarantee. Collateral substitutes such as market interlinkages were often used in informal credit markets. Nagarajan (1992) found in rice growing areas of the Philippines that loan

sizes were correlated with the type of collateral substitutes used to match the interests of the lenders and borrowers. Loans from trader lenders were larger for farm households that offered a marketable rice surplus as collateral than for those who offered no such collateral substitute.

Binswanger et al. (1986) examined the limits to the effect of collateral on loan sizes in India. The study indicated that the probability of obtaining loans from formal lenders was determined by the amount and form of the borrower's assets that have high collateral value, and by the borrower's personal characteristics. Increases in the borrower's wealth also increased the likelihood of getting better loan terms and a larger loan size. Increasing land area operated increased total credit use up to nine hectares of land, but then progressively reduced it. The size of loan obtained from institutional lenders increased with the size of operational land holding up to 15 hectares, but then loan size declined with larger land area operated. The existence of other physical assets had no clear relationship with small loans, but tended to be positively correlated with larger loans. The point where physical assets as collateral start to matter was reached earlier for informal than for formal loans. Loan sizes from both institutional and informal lenders were insignificant at lower asset levels, but were significantly positive after asset position reached a certain value. Land and labor market relationships were not significantly related to loan size but both land collateral and third party guarantees were positively and significantly related.

B. Collateral and Loan Quantity

Collateral is only one of the factors that affects loan quantity rationing. For example, Llanto and Dingcong (1994) sampled 34 banks in the Philippines and observed that lenders ranked the following factors in evaluating borrowers: (i) project viability, (ii) character/reputation, (iii) capacity to repay, (iv) marketability of collateral, and (v) sources of income. A premium was placed on the

anticipated income/profits of the borrower's project rather than on collateral. However, when collateral was provided, the probability of quantity rationing was observed to be lower the larger the ratio of value of the collateral offered to the loan size.

C. Collateral and Interest Rate

Collateral can also affect the interest rates charged. Swaminathan (1992) showed that systematic relationships existed between types of collateral used and interest rates on credit contracts in Indian villages. Both formal and informal lenders ranked immovable assets and gold as having high collateral values while assets such as promissory notes and movable assets were ranked low. The highest rates of interest in informal markets were charged for loans secured by movable assets. The next highest were loans with no collateral while the lowest were charged for immovable assets such as land and buildings. An inverse relationship was observed between the value of land owned and the average rates of interest charged on informal loans. In another study in India, Binswanger et al. (1986) showed that while formal lenders gave smaller size loans and charged high interest rates for borrowers without collateral, they gave larger loans at lower interest rates to borrowers in good standing or with large amounts of collateral.

D. Collateral and Institutional Environment

The social environment and the lack of enforcement mechanisms in a country may undermine the use of certain assets as collateral. In India, although only a few borrowers were able to obtain bank loans without formal collateral in the form of land, only a few banks were able to actually foreclose on land in the event of loan default because of social resistance to buy "unlucky lands" (Binswanger et al., 1986). A similar situation was noted in Cyprus, Jordan and Tunisia where banks

rarely foreclosed on land collateral during the past three decades even though default rates were high (NENARACA, 1994).

Actions of the state can also undermine the use of certain assets such as land as collateral. For example, small informal lenders in India could not use land as collateral since they were not registered under the moneylending registration act and hence promissory notes on land were not enforceable (Binswanger et al., 1986). In Korea, government restrictions on the use of land as collateral led to the use of third party guarantors for bank loans. However, informal lenders used land through disguised conditional sale contracts (Feder et al., 1988). Similarly, in the Philippines, restrictions on the transfer of land titles by land reform beneficiaries to only their legal heirs limited the use of land as collateral by formal banks. This has led to land pawning in informal credit markets (Nagarajan et al. 1992).

The absence of insurance markets in developing countries can also result in a reluctance by borrowers to provide collateral or to tie it up in loan contracts because assets are required to smooth out their consumption expenditures and to mitigate unforeseen contingencies. However, if credit and/or labor markets can perfectly substitute for insurance markets, then the borrower will likely be less risk averse to using collateral for loans.

IV. COLLATERAL/COLLATERAL SUBSTITUTES USED IN DEVELOPING COUNTRIES

Collateral is widely used to place moral pressure on the borrower rather than to actually force loan repayment. While formal lenders generally require tradeable assets as collateral, informal lenders often grant loans with no explicit collateral or accept tradeable and nontradeable

collateral/collateral substitutes. In addition, informal lenders design loan contracts in such a way that other terms and conditions substitute for the conventional collateral. Experiments are underway in several developing countries to devise collateral/collateral substitutes that will be effective in the local environment. This section will first list the types of collateral/collateral substitutes used in developing countries, and will then assess their strengths and weaknesses.

1. Collateral Used in Formal Credit Markets

Land with clear legal title is the most commonly accepted collateral for farm loans in developing countries. However, when institutional impediments exist, group guarantees have been widely used in several Asian countries. Evidence from Thailand and India shows that the majority of titled farmers have provided land as loan collateral while untitled farmers offered group guarantees to obtain bank loans (Feder et al., 1988). In the Philippines, the most commonly accepted collateral has included titled real estate, machinery, vehicles and equipment, standing crops through the issuance of promissory notes, working animals and, lastly, inventory. Farm lands have not been generally accepted as collateral from land reform beneficiaries due to restrictions on the transfer of land rights only to legal heirs (Llanto and Dingcong, 1994). Banks in Sri Lanka have accepted identity cards as a collateral substitute to establish the reputation of a borrower (Herath, 1994).

In Africa, movable assets and crops have been the most widely used collateral, followed in importance by land. The most frequent forms of collateral used have included mortgages on titled lands, registered movable assets, crops and livestock, term deposits, salary orders, negotiable instruments of bills and bonds, insurance policies and company share certificates, and to a lesser extent, third party guarantees, joint group liability, guarantee funds and the pledge of receivables.

For example, in Zimbabwe and Kenya all of the above mentioned types of collateral have been used. In Mali, only movable assets and crops are used (AFRACA, 1994). Group savings have been accepted as collateral for individual member loans in few African countries (Seibal and Marx, 1987). Large producers-exporters have been accepted as guarantors for loans extended to their outgrowers in Uganda, and post-shipment loans have been provided to pineapple exporters based on accounts receivables from importers (Nagarajan et al, 1994).

Agricultural projects in countries in the Near East have frequently used mortgages on officially registered immovable assets such as agricultural land and real estates and buildings, and third party guarantees. In addition, commercial bank guarantees for client's loans have been observed in Morocco, Oman, Yemen, Egypt, Syria, Sudan and Iran while shares and bonds have been used in Oman, Tunisia and Iran. Chattel mortgages on registered and insured machinery, trucks, etc. were found among formal banks in Egypt, Yemen, Jordan, Iran and Oman. Livestock are accepted in Tunisia if they are insured for life and are sold under state control. Bank deposits have also been used in Egypt, Syria, Algeria and Cyprus. Crop pledging with insurance have been accepted for only short-term and irrigated crops in Iran, Tunisia and Algeria. Egypt, Sudan and Algeria accept warehouse receipts. Post dated checks and employee salaries accompanied by guarantors are accepted as collateral in Oman and Sudan (NENARACA, 1994).

With the exception of Cuba, mortgaging of farm lands and real estates, and the pledging of machineries/equipments/livestock and third party guarantees have been widely used in several Latin American countries as loan collateral. Several formal lenders in Brazil, Mexico and Peru also accept as collateral warehouse receipts for non-perishable commodities including firewood and charcoal, and savings deposits. Guarantee funds have been commonly used in Mexico, Brazil and Columbia

to secure loans to small farmers. In Columbia, the trustees of guarantee funds issue collateral certificates that can be used as collateral (ALIDE, 1994).

For medium and large non-farm enterprises, promissory notes, letters of credit, warehouse receipts, merchandise, third party guarantees, savings accounts and accounts receivables are widely used as collateral in Latin America and Asia. In addition, large firms in the Dominican Republic and Mexico are observed to offer their commercial paper to borrow from other firms, individuals and banks (Adams, 1994a; Mansell, 1992). For small scale enterprises, while there exist several donor funded guarantee funds, they are seldom used as collateral. In addition, small scale enterprises only have access to special small enterprise programs such as the ones found in The Gambia and Senegal. The Swazi Business Growth Trust in Swaziland has been providing loans to established small firms using third party guarantors, and the Grameen Bank in Bangladesh accepts group guarantees.

Semi-formal institutions, such as NGOs, are becoming increasingly active in providing financial services in several developing countries. Several successful NGOs have tended to concentrate on non-agricultural activities rather than on agricultural activities (Drake and Otero, 1992; Graham, Meyer and Cuevas, 1993). Successful NGO programs in The Gambia, Dominican Republic and Columbia were observed to accept as collateral assets other than land, such as jewels, livestock, and group guarantees, third party guarantees and guarantee funds to provide loans.

2. Collateral used in Informal Credit Markets

In general, the collateral/collateral substitutes used in informal markets range from the widely acceptable collateral such as land on the one extreme to less marketable assets such as reputation, long-term relationships (business and familial), the threat of loss of future loans and social ostracism

on the other extreme. The lenders based on their specializations choose the most appropriate collateral/collateral substitute to consummate transactions. Therefore, borrowers rationed out of formal markets often are able to access informal loans.

Short-term loans are made among friends and relatives without any explicit collateral but with an implicit promise to repay and to reciprocate the favor in the future if the fortunes of the lender are reversed. Short-term loans from trader and farmer lenders have been observed to involve land, labor and product market interlinkages in India and the Philippines (Esguerra and Meyer, 1992; Bell, 1990). Consumer durables and animals are ranked to have low collateral value. Land is used only to finance long-term and large sized loans. When risks are small and the borrower's projects are economically viable, informal lenders are willing to tolerate some amount of legal ambiguity. This was observed in the Philippines where informal lenders accept the pawning of land cultivation rights from land reform beneficiaries who were otherwise restricted by agrarian reform laws to transfer their ownership rights only to their legal heirs. While the majority of countries have been slow to provide a strong legal environment to enforce informal loan contracts, traditional social laws and customs are supportive.

In general, long-term relations and reputation play a major role in facilitating transactions in informal credit markets. Informal lenders in Korea who have some familial connections with borrowers were found to accept less physical collateral compared to lenders with business relationships in the credit and related markets (Feder et al., 1988). Nagarajan (1992) also noted similar trends in The Philippines among rice farmers and farmer and trader lenders. Because of their proximity to their borrowers, farmer lenders relied more on the reputation of their borrowers while trader lenders more frequently required physical assets as collateral. Small and microenterprises

usually received credit from friends and relatives using familial and long-term relationships as collateral. Only a few established firms accessed supplier and buyer credits using reputation and business relationships as collateral.

3. Assessment of Collateral/Collateral Substitutes

The collateral and signalling value of different types of assets are based on their rates of return and their inherent riskiness due to the local institutional environment.

A. Land: Land is the least risky and commonly used collateral in developing countries, especially where property rights are clearly defined. The utility of land as collateral to a lender, however, depends on the social and legal environment that allows foreclosure and taking possession of land in the event of default.

B. Chattel assets: The majority of the rural poor possess livestock and small scale machinery that can be effectively used as collateral, but these assets are characterized by high collateral-specific risks. Generally, animals are poor forms of collateral and can be used only when there exist good rental and insurance markets. Chattel assets are considered as undesirable collateral as they lack registration title, are easily movable and can be disposed of without the knowledge of the lender. Leases can be considered as chattels but they need to be perfected by possession or public filing. In general, chattels are enforceable and lenders can establish seniority over their claims. But government tax authorities can file liens on borrower's chattels and subsequent loans made by banks for such borrowers using the chattels may have only secondary claims.

C. Third party guarantees: This form of collateral is commonly used by formal lenders in many developing countries. However, these guarantees involve additional costs to the

lender since the guarantors also need to be assessed for their character and credit worthiness in addition to the borrower. Legally, a guarantor in the United States may refuse to repay the loan if the borrower has used the money for a purpose different than was originally stated in the contract (Larr, 1994).

D. Group guarantees: Peer pressure can minimize strategic loan defaults and act as a form of social collateral. The experience of the Grameen Bank in Bangladesh suggests that group guarantees increase repayment rates. However, the repayment performance of several group guarantee programs has been poor and many have run into serious viability problems (Huppi and Feder, 1990). The rapid growth of such programs can be attributed to subsidized lending in many developing countries. Group guarantees can serve as effective collateral/collateral substitutes only if several conditions are satisfied such as member homogeneity with respect to economic and social criteria, small size of group membership and sufficient lending spreads in the loan contracts to cover eventual loan losses. In addition, group loans involve group formation costs that are either borne by the lender or the borrowers. It has been observed that the reduction in lending risk through a group guaranty is not very significant compared to the risk of individual loans.

E. Warehouse receipts: Warehouse receipts are a convenient form of collateral that can be accepted by banks. However, it is necessary that the country's legal system recognizes as collateral a fungible and perishable commodity such as grain deposited in a warehouse. It can be risky to rely on warehouse inventories because stored commodities can be inadvertently sold or purposefully pledged to another creditor without the lender's knowledge. Therefore, securities such as warehouse receipts need to be backed up with a system of warehouse bonding. Lenders need to know that the grain is actually deposited in the warehouse and that the warehouse or the borrower

has the right to sell it and use it to secure loans. Use of a third party collateral manager can also increase the value of the stored crop/product.

F. Savings funds: In some African countries, group savings deposited in a bank are used as collateral for individual group member loans. In addition, a two tier guarantee system wherein group savings serve as a first tier guarantee and matching funds from an NGO functions as a second tier guarantee is also useful as collateral to provide individual loans to group members (Seibal and Marx, 1987). Use of compensating balances wherein savings/certificates of deposits are blocked to secure loans, especially when the collateral offered is weak, can also serve as collateral. Savings signal to the lender that the borrower is disciplined. However, the use of savings funds involve costs in mobilizing savings and in record keeping.

G. Reputation: Contracts to repeat borrowers essentially replicate previous loans with modifications to meet new circumstances. Therefore, the reputation that borrowers gain through long association and repeat transactions can reduce the time lenders need to evaluate the credit worthiness of repeat borrowers. Furthermore, reputation can effectively enforce contracts in traditional societies. However, borrowers need to first establish their reputation because they suffer from the "liability of newness." In addition, formal lenders are often limited in their capacity to assess the qualitative attributes of a borrower so that a collateral substitute such as reputation cannot be traded in a market to recover loans.

H. Guarantee funds: Guarantee funds are increasingly used to support lending to small and poor borrowers who are unable to offer physical collateral and/or may be unable to repay due to unforeseen natural calamities. Although such funds are favored by donors, they have a questionable impact on increasing the volume of rural lending, as observed in The Gambia,

Swaziland and Uganda [4]. Performance may improve if the formation of guarantee funds involves the participation of the borrowers. Informal groups such as Rotating Savings and Credit Associations in The Gambia reduce delinquency and default problems by effectively using a contingency fund formed by their members. In Tunisia, a guarantee fund at the Central bank gets contributions from borrowers up to 12% of the loan amount granted. In Egypt, an experiment is being conducted in which specialized companies called collateral lenders are undertaking guarantees for commercial bank loans. A two stage guarantee fund can be effective wherein donors match the contingency fund established by borrowers.

I. Insurance: The availability of insurance can convert risky assets into more secure ones and make them usable as collateral. However, incentives such as high personal liability for the loan are needed to encourage borrowers to buy insurance. The Comprehensive Crop Insurance Scheme (CCIS) for short-term agricultural loans in India was observed to substantially expand the number and size of loans made to insured small farmers (Mishra, 1994). However, crop insurance and insurance for other assets used as collateral, such as animals, is often not available or is expensive due to several reasons including problems in screening, monitoring and enforcing insurance contracts.

In general, the acceptability of collateral/collateral substitutes depends on the ability of a lender to adequately evaluate the value of it in a given legal environment. Otherwise, the costs of loan foreclosure and seizing the collateral may far exceed the benefits of using it to secure a loan. Furthermore, the lack of or improper valuation can lead to undervaluation or the rejection of assets

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[4] See also Levitsky and Prasad (1987).

offered as collateral. This will result in a reduced number and size of loans, and problems in enforceability of loan repayment and liquidation of pledged assets. The next section elaborates on these points.

V. ISSUES IN EVALUATING COLLATERAL/COLLATERAL SUBSTITUTES

Evaluation is the process used by lenders to appraise the quality and value of the collateral offered by borrowers in a given legal environment and it requires the existence of markets or some other suitable method to determine the use value of assets (Meyer, Graham and Cuevas, 1992). Valuation ensures that the fundamental requirements including security and marketability of the asset are satisfied so that lenders are assured of their claims over it. Specifically, valuation needs to clarify: Who is the true owner of the collateral? Who has the right to assign or pledge it? Does the title to the asset have any restrictions? Can it be located? Are there any other liens? How can it be secured? What is the real value of the asset: market, replacement or book value? How liquid is the asset? How marketable is it? How is it insured against fraud?. This section will discuss these issues.

1. Security of Collateral

The value and marketability of an asset offered as collateral is affected in part by the method through which it is secured by the lender. When the collateral remains with the borrower but can be possessed and liquidated by the lender to cover loan losses in the event of default, then the lender's security interest is "attached" to that asset. The risk to the lender is that the borrower can

liquidate an attached security to a third party without the lender's knowledge before the end of the contract so the lender may not be able to claim it in case of bankruptcy. On the other hand, when the lender takes physical possession of the collateral (eg: pawning) or when the law assures the lender of a senior claim to it, then the security interest is "perfected." The ability of the lender to perfect a security also prevents the borrower from incurring additional debts using the same collateral. A legal environment with no provision for registration of assets offered as security only allows for attaching an interest to a security and not perfecting it. An example is cited from Ghana where lenders cannot register their rights to grain offered as security thereby reducing the collateral value of warehouse receipts (FAO, 1994).

Differences between negotiable and non-negotiable contracts also play a major role in determining their value as collateral. A negotiable contract allows the lender to either take possession of the collateral or transfer the rights to a buyer so they can be liquidated to cover loan losses. For example, in India, warehouse law allows warehouse receipts to be written as a negotiable instrument, while in Ghana they are not included under negotiable instruments so this reduces their collateral value (FAO, 1994).

2. Valuation of Collateral

Valuation of collateral is expensive. High and variable inflation rates make asset valuation more difficult, and high volatility in the economic and political environment will tend to depreciate the value of collateral. Limited information about various types of collateral and lengthy legal procedures also pose problems for lenders in liquidating assets.

In practice, while some financial institutions use the fair market value method of asset evaluation, the majority use the forced sale value method after discounting for unexpected uncertainties. Most of the formal lenders in Sub-Saharan Africa use external independent valuators while government valuations are used in Near East countries (AFRACA, 1994; NENARACA, 1994). In Egypt, the lenders accept the borrowers' evaluation of their collateral if it sounds reasonable. The absence of markets in several developing countries for some assets, however, makes valuation difficult.

3. Establishing Loan to Collateral Ratios

Proper collateral evaluation helps to determine the ratios of loan size to collateral value since the expected rate of asset appreciation or depreciation, the certainty of price expectations, and the costs of liquidation need to be considered in determining the ratio. The maximum allowable loan as a fraction of current market value of the asset should increase with the rate of appreciation of the asset.

In practice, these ratios vary among countries, institutions within a country, for borrowers within an institution and by types of collateral offered. The loan-collateral ratio in the Philippines averaged 64% and ranged from one to more than 100%, while it ranged from 45 to 100% in Sub-Saharan Africa and from 30 to 130% in Latin America (Llanto and Dingong, 1994; AFRACA, 1994; ALIDE, 1994). Banks in Zambia takes the capitalized interest for the full term into account while calculating the ratio. In the Agricultural Development Bank of Ghana, the commercial values of collateral are discounted by as much as 49% to create the required safety margin. In Kenya, only the principal amount of the loan is taken into account in calculating the ratio (AFRACA, 1994).

VI. CONCLUSIONS AND IMPLICATIONS FOR BANKERS, DONORS AND GOVERNMENTS

Inadequate conventional collateral has been assumed to lead to restricted access to formal credit for rural borrowers. This paper shows that while collateral matters for improving access to loans and to loans of larger size, these relationships may hold only when specific conditions are met. The conditions include strong markets and legal institutions, and political and social willingness to allow collateral perform its prescribed role [5]. Therefore, efforts to increase access to rural finance must go far beyond simply improving access to collateral. The above conclusion is strengthened by three major observations: (i) while the majority of formal lenders still rely upon the traditional approach of requiring conventional collateral, such as land, to secure loans, several types of collateral substitutes are being used in rural formal financial markets, (ii) semi formal and informal financial arrangements have found several collateral substitutes to secure loans without relying on conventional collateral so borrowers rationed out of formal loans are often able to access from these sources, and (iii) the social, economic and legal environment within which the banks operate frequently influences the acceptability and value of assets used as collateral.

Several policy implications arise from the above analysis. The first concerns the traditional use of land as collateral. The absence of well-defined property rights, and inefficient and unreliable legal systems in developing countries are often cited as constraints on the effective use of it.

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[5] Anecdotal evidence from developed countries with facilitating institutional, political and social conditions show that formal lenders use collateral only to provide large and longer term loans. New applicants (with no credit/savings history with the bank) for short term and smaller sized loans are not asked to offer any collateral but are generally rationed out. This is because of the high costs of collateralization and time costs in foreclosing collateral for small loans.

Therefore, there is a need to improve the security and transferability of land titles and to strengthen the environment in which it is used as collateral. As a result, extensive land titling programs are often recommended to improve the functioning of land markets and to improve access to formal credit markets for holders of land. This argument is supported by empirical evidence that shows that access to formal loans increases as the security of land titles increase in Thailand, and with the official granting of occupation certificates in Nigeria. The Philippines experience, on the other hand, suggests that agrarian reform laws which restrict land transfers by land reform beneficiaries reduces the collateral value of land. Titling programs, however, are difficult and costly to implement. This gives rise to the need for other methods to improve access to formal loans for persons who already have some access to land or cultivation rights, but still face difficulties in accessing formal loans.

While improving the property rights for land and the legal system to enforce loan contracts may be necessary conditions, they are not sufficient conditions to make land an acceptable collateral for formal lenders. There are at least two sufficient conditions. First, land pledged as collateral must have value, which requires the existence of markets or other methods to determine land use value. In many developing countries, however, land markets are thin or nonexistent. Water rights convey significantly more value than land use rights in several Sub-Saharan African countries. Indeed, other assets, such as livestock, consumer durables, or use rights to plantations, may better meet the appropriability, value, and enforceability conditions for acceptable collateral than do land use rights. Second, the eventual transfer of control over land pledged as collateral must be socially enforceable, which implies that a socially accepted mechanism of contract enforcement must exist. The existence of a legal system may not be a sufficient condition for effective contract enforcement, if legal action, such as foreclosure on collateral, is not a credible threat to the potential defaulter. Social customs

or political imperatives may make it impossible for banks to foreclose on land that secures a defaulted loan. In some areas of Kenya, for example, land has little collateral value because land transfers to outsiders through sale or foreclosure are not always socially accepted as legitimate (Meyer, Graham and Cuevas, 1992). Formal lenders need to devise innovative mechanisms for increasing the use value of land. It is imperative that incentive compatible loan contracts are designed that incorporate an appropriate role for land as collateral. For example, formal lenders may be able to accept tribal/communal lands as collateral for individual loans by getting the loans witnessed by village headsmen who can apply social sanctions in the event of default.

Given the limitations of land as collateral, formal lenders need to consider using assets other than land and collateral substitutes, such as third party guarantors, witnessing of contracts by local authorities and group guarantees, to improve access to formal loans. Mechanisms should be devised to use a combination of collateral and collateral substitutes such as reputation and character based lending. It may be difficult for formal credit institutions to accept all the collateral substitutes used by informal lenders to improve borrower access to credit, but they may be able to learn from informal lender techniques. The experiments now underway in which formal lenders mimic informal lenders or formal institutions are linked with various types of informal financial arrangements may prove to be promising innovations. Furthermore, innovative techniques used by formal lenders, such as the use of outgrower finance schemes, identity cards, group savings, accounts receivables, inventory, etc. need to be monitored for possible replication so that collateral/collateral substitutes can be more widely utilized to improve loan access for rural borrowers. There may be important lessons to be learned from informal lenders and third party commercial finance companies in Egypt called collateral lenders.

The donors have an important role to play in helping resolve collateral issues. They can finance innovative financial programs that provide technical assistance and seed capital, systematically conduct comparative analyses and disseminate the results of experiments, and contribute capital to leverage group savings programs that have improved access to loans. Caution must be exercisized, however, so that indigenous self-help initiatives are not undermined by excessive amounts of outside funds from enthusiastic well-intentioned donors. In addition, more empirical research is needed to carefully and rigorously analyze collateral and non-collateral determinants of access to formal loans, to study potential borrowers who self-select themselves out of the credit markets due to perceptions about collateral and access to loans, and to analyze the actual reasons for lenders rejecting certain applicants. In addition, NGOs that successfully provide financial services need to be evaluated to determine how effectively they use collateral/collateral substitutes in lending. Their financial services need to be more carefully analyzed to assess if they really contribute to integrating rural financial markets and to economic growth, or if they simply serve a niche market and alleviate poverty for participants in their specific programs. It is important to determine if they are really developing techniques that can be adopted in formal financial markets by financial institutions providing sustainable services. Since group lending is so widely used by NGOs, careful analysis is needed to determine if and where it is actually superior to individual lending in improving loan access to the rural poor.

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